

Amendments to the Claims:

The following listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently Amended) A method of fabricating a light-emitting device having a light-emitting layer section configured as having a double heterostructure in which a first conductivity type cladding layer, an active layer, and a second conductivity type cladding layer, all of which being composed of $(\text{Al}_x\text{Ga}_{1-x})_y\text{In}_{1-y}\text{P}$ (where, $0 \leq x \leq 1$, $0 \leq y \leq 1$), are stacked in this order, and further comprising an ITO transparent electrode layer applying drive voltage for light-emission to the light-emitting layer section on at least either side of the first conductivity type cladding layer and the second conductivity type cladding layer, comprising the steps of:

forming a GaAs layer on the light-emitting layer section;

forming the ITO transparent electrode layer so as to contact with the GaAs layer to form a stack including the GaAs layer and the ITO transparent electrode layer; and

annealing the stack so as to allow In to diffuse from the ITO transparent electrode layer into the GaAs layer to thereby convert it into a contact layer composed of In-containing GaAs,

wherein the annealing is carried out so as to adjust a mean In concentration of the contact layer within a range from 0.1 to 0.6 on the basis of atomic ratio of In to the total concentration of In and Ga, ~~and~~

wherein the annealing is carried out so as to adjust C_B/C_A to 0.8 or below, where C_A is In concentration at a boundary position between the contact layer and the ITO transparent electrode layer, and C_B is In concentration at a boundary position on the opposite side, and

wherein the light-emitting layer section is configured using $(\text{Al}_x\text{Ga}_{1-x})_y\text{In}_{1-y}\text{P}$ (where, $0 \leq x \leq 1$, $0.45 \leq y \leq 0.55$) to ensure lattice matching between the GaAs layer and the light-emitting layer section.

2. (Original) The method of fabricating a light-emitting device as claimed in Claim 1, wherein the annealing is carried out at 600°C to 750°C, both ends inclusive.

3. (Canceled)

4. (Previously Presented) The method of fabricating a light-emitting device as claimed in Claim 2, wherein process time of the annealing is set to 5 seconds to 120 seconds, both ends inclusive.

5. (Canceled)

6. (Previously Presented) The method of fabricating a light-emitting device as claimed in Claim 1, wherein thickness of the contact layer is adjusted within a range from 0.001 μm to 0.02 μm , both ends inclusive.

7. (Previously Presented) The method of fabricating a light-emitting device as claimed in Claim 1, wherein the annealing is carried out so as to make an In concentration distribution in the thickness-wise direction of the contact layer continuously reduce as becoming more distant away from the ITO transparent electrode layer in the thickness-wise direction.

8. (Canceled)

9. (Previously Presented) The method of fabricating a light-emitting device as claimed in Claim 1, further comprising a step of forming, between the contact layer and either cladding layer of the first conductivity type cladding layer and the second conductivity type cladding layer located on the side of formation of the contact layer, an intermediate layer having an intermediate band gap energy between those of the contact layer and the cladding layer.

10. (Original) The method of fabricating a light-emitting device as claimed in Claim 9, wherein the intermediate layer is formed as containing at least any one of an AlGaAs layer, a GaInP layer and an AlGaInP layer.

11. (Previously Presented) The method of fabricating a light-emitting device as claimed in Claim 9, wherein the intermediate layer and the contact layer are formed over the entire surface of the light-emitting layer section in this order, and the ITO transparent electrode layer is formed so as to cover the entire surface of the contact layer.

12. (Currently Amended) A light-emitting device having a light-emitting layer section configured as having a double heterostructure in which a first conductivity type cladding layer, an active layer, and a second conductivity type cladding layer, all of which being composed of $(\text{Al}_x\text{Ga}_{1-x})_y\text{In}_{1-y}\text{P}$ (where, $0 \leq x \leq 1$, $0 \leq y \leq 1$), are stacked in this order; having an ITO transparent electrode layer applying drive voltage for light-emission to the light-emitting layer section on at least either side of the first conductivity type cladding layer and the second conductivity type cladding layer, so as to extract light from the light-emitting layer section through the ITO transparent electrode layer; and having a contact layer composed of In-containing GaAs, formed between the light-emitting layer section and the ITO transparent electrode layer, as being in contact with the ITO transparent electrode layer,

wherein the contact layer is designed to have an In concentration distribution in a thickness-wise direction thereof continuously reducing as becoming more distant away from the ITO transparent electrode layer in the thickness-wise direction,

wherein a mean In concentration of the contact layer is adjusted within a range from 0.1 to 0.6 on the basis of atomic ratio of In to the total concentration of In and Ga, ~~and~~

wherein the contact layer is designed to have C_B/C_A of 0.8 or below, where C_A is In concentration at a boundary position between the contact layer and the ITO transparent electrode layer, and C_B is In concentration at a boundary position on the opposite side, and

wherein the light-emitting layer section is configured using $(Al_xGa_{1-x})_yIn_{1-y}P$ (where, $0 \leq x \leq 1$, $0.45 \leq y \leq 0.55$) to ensure lattice matching between a GaAs layer and the light-emitting layer section.

13. (Canceled)

14. (Previously Presented) The light-emitting device as claimed in Claim 12, wherein thickness of the contact layer is adjusted within a range from 0.001 μm to 0.02 μm , both ends inclusive.

15-16. (Canceled)

17. (Previously Presented) The light-emitting device as claimed in Claim 12, further comprising, between the contact layer and either cladding layer of the first conductivity type cladding layer and the second conductivity type cladding layer located on the side of formation of the contact layer, an intermediate layer having an intermediate band gap energy between those of the contact layer and the cladding layer.

18-22. (Canceled)

23. (Previously Presented) The method of fabricating a light-emitting device as claimed in Claim 2, wherein thickness of the contact layer is adjusted within a range from 0.001 μm to 0.02 μm , both ends inclusive.

24. (Canceled)

25. (Previously Presented) The method of fabricating a light-emitting device as claimed in Claim 2, wherein the annealing is carried out so as to make an In concentration distribution in the thickness-wise direction of the contact layer continuously reduce as becoming more distant away from the ITO transparent electrode layer in the thickness-wise direction.

26-28. (Canceled)

29. (Previously Presented) The method of fabricating a light-emitting device as claimed in Claim 2, further comprising a step of forming, between the contact layer and either cladding layer of the first conductivity type cladding layer and the second conductivity type cladding layer located on the side of formation of the contact layer, an intermediate layer having an intermediate band gap energy between those of the contact layer and the cladding layer.

30. (Canceled)

31. (Previously Presented) The method of fabricating a light-emitting device as claimed in Claim 29, wherein the intermediate layer is formed as containing at least any one of an AlGaAs layer, a GaInP layer and an AlGaInP layer.

32. (Canceled)

33. (Previously Presented) The method of fabricating a light-emitting device as claimed in Claim 29, wherein the intermediate layer and the contact layer are formed over the entire surface of the light-emitting layer section in this order, and the ITO transparent electrode layer is formed so as to cover the entire surface of the contact layer.

34. (Previously Presented) The method of fabricating a light-emitting device as claimed in Claim 10, wherein the intermediate layer and the contact layer are formed over the entire surface of the light-emitting layer section in this order, and the ITO transparent electrode layer is formed so as to cover the entire surface of the contact layer.

35. (Canceled)

36. (Previously Presented) The method of fabricating a light-emitting device as claimed in Claim 31, wherein the intermediate layer and the contact layer are formed over the entire surface of the light-emitting layer section in this order, and the ITO transparent electrode layer is formed so as to cover the entire surface of the contact layer.

37-47. (Canceled)